

Occupational Health Indicators in South Dakota: A Baseline Occupational Health Assessment 2002-2008

Prepared by:

Kaylan Stinson, MSPH¹

Karen B. Mulloy, DO, MSCH¹

Yvonne Boudreau, MD, MSPH²

Corey Campbell, MS²

Anna Briggs, MPH³

Courtney Hanlon¹

Kenneth Scott, MPH¹

¹Mountain and Plains Education and Research Center
University of Colorado Denver- Colorado School of Public Health

²National Institute for Occupational Safety and Health
Western States Office, Denver, CO

³Midwest Center for Occupational Health and Safety
University of Minnesota School of Public Health

**MOUNTAIN
& PLAINS ERC**

*A NIOSH Education and Research Center for
Occupational & Environmental Health & Safety*



The Midwest Center for Occupational Health and Safety

Table of Contents

Executive Summary	4
Recommendations	5
Introduction	6
Methods	7
South Dakota Demographic Profile	8-12
Figure P.1 Employed SD and US civilian workers by age, 2002-2008	
Figure P.2 Employed SD and US civilian workers by sex, 2002-2008	
Figure P.3 Employed SD and US civilian workers by race and ethnicity, 2002-2008	
Table P.1 Number of civilian workers employed, SD and US, 2002-2008	
Figure P.4 Employed SD and US civilian workers by employment status, 2002-2008	
Figure P.5 Employed SD and US civilian workers by hours worked, 2002-2008	
Figure P.6 Employed SD civilian workers by industry, 2003-2008	
Figure P.7 Employed SD civilian workers by occupation, 2003-2008	
Indicator 1: Non-fatal Injuries and Illnesses	14-15
Table 1.1 Non-fatal work-related injury and illness cases, SD, 2002-2006	
Indicator 2: Work-related Hospitalizations	17
Indicator 3: Fatal Work-related Injuries	18-19
Table 3.1 Fatal work-related injuries, SD and US, 2003-2008	
Figure 3.1 Rate of fatal work-related injuries per 100,000 workers, SD and US, 2003-2008	
Indicator 4: Work-related Amputations with Days Away from Work Reported by Employers	21
Indicator 5: Amputations Identified in State Workers' Compensation Systems	23
Indicator 6: Hospitalizations for Work-related Burns	25
Indicator 7: Work-related Musculoskeletal Disorders with Days Away from Work Reported by Employers	27
Indicator 8: Carpal Tunnel Syndrome Cases Identified in State Workers' Compensation Systems	28-29
Table 8.1 Carpal tunnel syndrome filed with state workers' compensation, SD, 2002-2006	

Indicator 9: Pneumoconiosis Hospitalizations	31
Indicator 10: Pneumoconiosis Mortality	33
Indicator 11: Acute Work-related Pesticide Poisonings Reported to Poison Control Centers	34-35
Table 11.1 Work-related pesticide poisonings reported to poison control centers and rate per 100,000 employed, SD and US, 2002-2008	
Indicator 12: Incidence of Malignant Mesothelioma	37
Table 12.1 Incidence of malignant mesothelioma, SD, 2002-2008	
Indicator 13: Elevated Blood Lead Levels Among Adults	39
Indicator 14: Workers Employed in Industries with High Risk for Occupational Morbidity	40-41
Table 14.1 Percentage of workers employed in industries with high risk for occupational morbidity, SD and US, 2003-2007	
Indicator 15: Workers Employed in Occupations with High Risk for Occupational Morbidity	42-43
Table 15.1 Percentage of workers employed in occupations with high risk for occupational morbidity, SD and US, 2003-2008	
Indicator 16: Workers Employed in Industries and Occupations with High Risk for Occupational Mortality	44-45
Table 16.1 Workers employed in industries and occupations at high risk for occupational mortality, SD and US, 2003-2008	
Indicator 17: Occupational Safety and Health Professionals	46-47
Table 17.1 Number of occupational safety and health professionals, SD, 2003-2008	
Indicator 18: OSHA Enforcement Activities	48-49
Table 18.1 Percent of establishments under OSHA jurisdiction inspected and employees whose work areas were inspected by OSHA, SD, 2001-2008	
Indicator 19: Workers' Compensation Awards	50-51
Table 19.1 Average workers' compensation benefit paid per covered worker, SD and US, 2002-2007	
Figure 19.1 Average workers' compensation benefit paid per covered worker, SD and US, 2002-2007	
Indicator 20: Hospitalizations for Work-related Low Back Disorders	53
Conclusions	54
Data Sources	55
References	56

Executive Summary

The Mountain and Plains Education and Research Center (MAP ERC) and the Midwest Center for Occupational Health and Safety, in collaboration with the National Institute for Occupational Safety and Health (NIOSH) Western States Office, Denver, have prepared this data-driven report to provide a baseline occupational health status of workers in South Dakota (SD). The purpose of this assessment is to provide the state with the data needed to examine the benefits of conducting state-wide occupational health surveillance, to help describe potential emerging issues, and to assist in determining priorities for prevention of work-related injuries and illnesses. The reader is cautioned that the data and analyses presented herein are descriptive in nature and are not intended to offer causal explanations or identify worker tasks, experience, training or control measures. Further, the design of the report does not account for changes in state or national economic and demographic conditions or changing workforce characteristics. Highlights of the report are listed below:

- The average annual rate of fatal work-related injuries in SD is higher when compared to the overall US rate.
- An estimated 5 per 100,000 SD workers per year experienced work-related pesticide poisoning during 2002-2008
- SD has a higher percentage of workers employed in *Industries* with a high risk for occupational morbidity compared to the US.
- SD has a higher percentage of workers employed in *Occupations and Industries* with a high risk for occupational mortality when compared to US rates.

There is a significant gap in data and need for workplace health surveillance in SD is non-fatal work-related injuries and illnesses. SD is one of seven states that does not participate in the Survey of Occupational Injuries and Illnesses (SOII). The SOII collects data on non-fatal work-related injuries and illnesses reported by employers. These data are helpful in describing the burden of injuries and illnesses that occur in the workplace. Additionally, SD is one of ten states that does not participate in the Adult Blood Lead Epidemiology and Surveillance (ABLES) program (<http://www.cdc.gov/niosh/topics/ABLES/ables.html>). The ABLES program is a state-based surveillance program of laboratory-reported adult blood lead levels. The program objective is to build state capacity to initiate, expand, or improve adult blood lead surveillance programs to accurately trend adult lead levels related to work exposure and can help guide effective interventions.

Recommendations

The authors of this report believe that the collection of the Occupational Health Indicators, as developed by NIOSH and the Council of State and Territorial Epidemiologists (CSTE), is useful in improving specific data collection for SD and that the resultant characterization of occupational injury and illness is instrumental in setting priorities for prevention efforts within the state. However, it is only a first step in developing a comprehensive occupational health surveillance program for SD. The following recommendations are offered to help facilitate that process. The first four recommendations can be accomplished with minimal resources and within a short time frame. The remaining recommendations may take a longer period of time and expanded funding to complete.

- Helping state and county agencies recognize the importance of state-based occupational health surveillance is the first step in developing a comprehensive and effective state-based occupational health surveillance program. Begin by holding a meeting with public, private and labor organizations to discuss how to implement occupational health surveillance in SD and to determine what funding may be necessary to extend public health activities to include.
- Actively seek funding (state, federal and foundation) to support state-based occupational safety and health activities. This includes applying for funding for a state-based surveillance program through the NIOSH cooperative agreement.
- Explore ways and identify resources needed to participate in the Survey of Occupational Injuries and Illnesses (SOII) to obtain data on non-fatal work-related injuries and illnesses.
- Explore ways and identify resources needed to participate in the NIOSH Adult Lead Epidemiology and Surveillance (ABLES) program to obtain data on blood lead levels in SD residents.
- Commit to establishing minimum state based-activities in occupational safety and health as recommended by CSTE and NIOSH, with plans to expand to comprehensive activities. (see Guidelines for Minimum and Comprehensive State-Based Public Health Activities in Occupational Safety and Health, NIOSH Publication No. 2008-148. Available at <http://www.cdc.gov/niosh/docs/2008-148/>)
- Examine key indicators presented in this report in greater depth to target future state-specific surveillance and intervention efforts in occupations and industries of greatest concern. Where appropriate, extend years of analysis and conduct trend analysis.
- Expand mandatory disease reporting in SD to include occupational and environmental disease and injury.
- Participate in meetings and other activities with NIOSH and other states collecting occupational health and safety data.

Please see individual indicators of this report for additional specific recommendations.

Introduction

Each year, thousands of workers in South Dakota (SD) are exposed to workplace conditions that result in occupational illnesses and injuries. At present, there is no comprehensive, state-wide surveillance system in SD that provides routine data collection, analysis and the development of intervention and prevention strategies for a variety of work-related health effects. The development of a comprehensive occupational health surveillance system is essential for the identification and prevention of workplace related injuries and illnesses and can assist with assuring workplaces are safer and healthier.

In recognition of the need for state-based occupational health surveillance programs nationwide, the National Institute for Occupational Safety and Health (NIOSH) and the Council of State and Territorial Epidemiologists (CSTE) developed a list of occupational health indicators (OHIs) for the purpose of describing the demographics and the baseline health of working populations, tracking occupational health trends over time and comparing state data to national data. The goal is to guide state priorities in workplace injury and illness prevention and intervention. Of the 20 indicators, 13 report injury and illness resulting from occupational hazards; three describe potential workplace health and safety hazards; two examine intervention activities; one measures harmful exposures in the workplace; and one describes the socio-economic impacts of work-related injuries and illnesses.

The purpose of this project is to describe the baseline occupational health status of workers in SD using the OHIs with the target objective of building capacity for occupational health surveillance in SD.

Specifically, the goals of this report are to:

- Identify state and national data sets describing occupational health pertinent to SD
- Develop a systematic approach to identifying and accessing available data sources
- Collect and compile available data from 2004 to 2008
- Describe the status of worker health in SD
- Determine gaps in the data
- Define the greatest needs for workplace health surveillance
- Determine priorities for prevention and workplace intervention efforts
- Recommend future directions

The indicators presented in this report describe core data to inform and guide the development of programs to prevent work-related injuries and illnesses. It is a product of the Mountain and Plains Education and Research Center (MAP ERC), a center to improve occupational and environmental health and safety through education, research, and community partnership, funded by the Centers for Disease Control and Prevention/NIOSH through grant #5T42OH009229-02. This report represents the views of the authors and should not be considered the official views of the sponsoring agency or any other institution.

We would like to thank and acknowledge the SD Department of Public Health, NIOSH and CSTE for their help in accessing data that contributed to this report.

Methods

Using the CSTE *Occupational Health Indicators: A Guide for Tracking Occupational Health Conditions and their Determinants*, found at www.cste.org (May 2010 update), a core set of data was abstracted from existing SD and national datasets for the years 2002-2008 (when available). Exceptions for years are noted in the methods section of each OHI. When appropriate, state and national data are compared.

Detailed methods are described in the CSTE Guidelines. As of the date of this report, thirteen indicators are complete, four are not publically available (Indicator 2: work-related hospitalizations, Indicator 6: hospitalizations for work-related burns, Indicator 9: pneumoconiosis hospitalizations; Indicator 20: hospitalizations for work-related low back disorders) and four are not completed because the data are not available (Indicator 4: amputations reported by employers, Indicator 5: amputations identified in state workers' compensation, Indicator 7: musculoskeletal disorders reported by employers, Indicator 13: elevated blood lead levels among adults). Each OHI presented in this report is described in terms of its significance, specific methods, results, limitations, and recommendations. It should be noted that some of the OHIs are based on small numbers and as a result, crude numbers, percentages and rates can change considerably from one year to the next. A list of data sources can be found at the end of this report.

Occupational Health Indicators

- Employment and Demographic Profile
- 1 Non-fatal Injuries and Illnesses
- 2 Work-related Hospitalizations
- 3 Fatal Work-related Injuries
- 4 Amputations Reported by Employers
- 5 Amputations Identified in State Workers' Compensation
- 6 Hospitalizations for Work-related Burns
- 7 Musculoskeletal Disorders Reported by Employers
- 8 Carpal Tunnel Syndrome Cases Identified in State Workers' Compensation
- 9 Pneumoconiosis Hospitalizations
- 10 Pneumoconiosis Mortality
- 11 Acute Work-related Pesticide Poisonings Reported to Poison Control Centers
- 12 Incidence of Malignant Mesothelioma
- 13 Elevated Blood Lead Levels Among Adults
- 14 Workers Employed in Industries with High Risk for Occupational Morbidity
- 15 Workers Employed in Occupations with High Risk for Occupational Morbidity
- 16 Workers in Occupations and Industries with High Risk for Occupational Mortality
- 17 Occupational Health and Safety Professionals
- 18 OSHA Enforcement Activities
- 19 Workers' Compensation Awards
- 20 Hospitalization for Work-related Low Back Disorders

South Dakota Employment Demographic Profile

Significance

Understanding the diversity of workers and the characteristics of working populations is essential in the assessment of occupational health and work-related injury and illness prevention. It allows for more detailed analysis of worker subgroups who may be experiencing higher than expected rates of work-related injuries or illnesses and helps in the planning and development of prevention activities that are culturally appropriate.

Methods

The demographic and employment characteristics for SD and US civilian workers were obtained from the Bureau of Labor Statistics (BLS) Current Population Survey and BLS Geographic Profiles of Employment and Unemployment.

Age, sex, race/ethnicity and employment characteristics are described for the years 2002 to 2008 for both SD and the US. The percent of civilian workers employed by occupational and industry categories is only reported for 2003 to 2008 due to the changes in BLS category definitions that took effect in 2003.

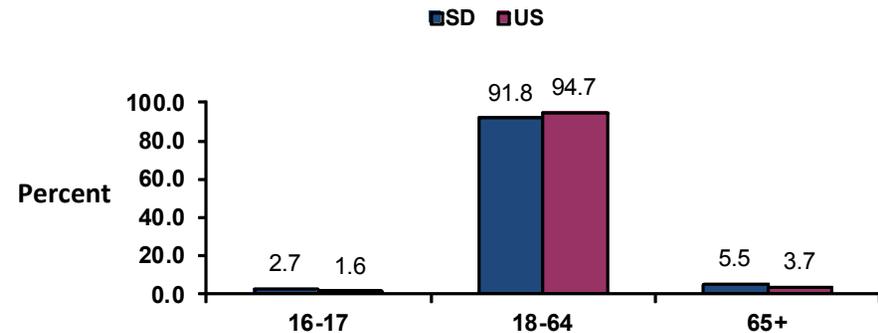
Results

Demographics

Age

- Over 91% of civilian workers employed in both SD and the US from 2002 to 2008 were between the ages of 18 and 64 years.
- SD had a larger percentage of workers >65 years of age compared to the US, 2002-2008

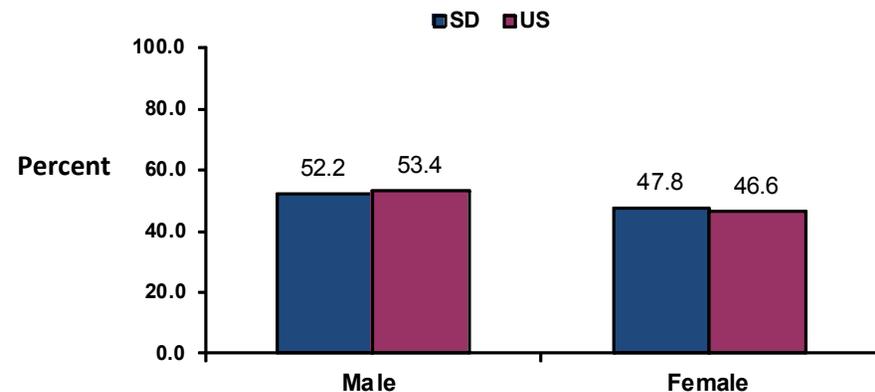
Figure P.1 Employed SD and US Civilian Workers by Age, 2002-2008



Sex

The distribution of sex for SD and the US civilian workers from 2002 to 2008 was similar. Overall, there were more male workers than female workers.

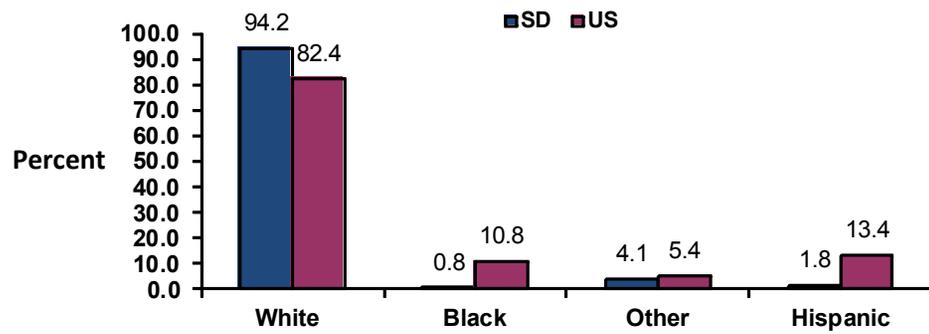
Figure P.2 Employed SD and US Civilian Workers by Sex, 2002-2008



Race/Ethnicity

- The majority of civilian workers in SD and the US from 2002 to 2008 were White.

Figure P.3 Percentage of Civilian Employment by Race and Ethnicity, SD and US, 2002-2008



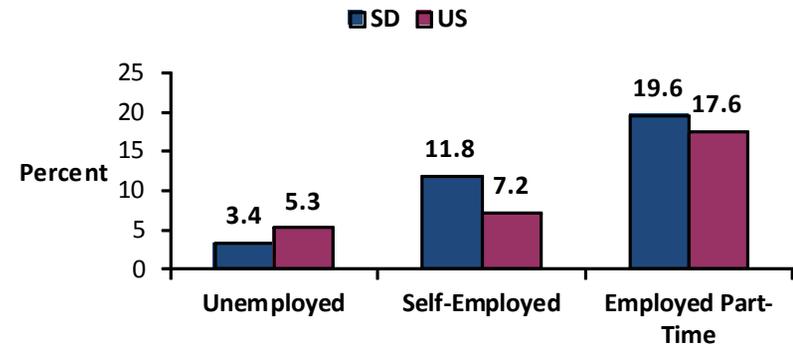
Employment Characteristics

- More than 420,000 civilian workers per year were employed in SD for the years 2002 to 2008. Table P.1 shows the number of civilian workers in SD and the US by year.

Year	South Dakota	United States
2002	409,000	135,909,000
2003	417,000	138,209,000
2004	416,000	139,833,000
2005	417,000	142,459,000
2006	429,000	145,049,000
2007	435,000	146,694,000
2008	440,000	145,882,000

- Between 2002-2008 the average unemployment rate in SD was 3.7, ranging from 2.9 in 2007 to 4.3 in 2005. The average unemployment rate during this time was slightly lower in SD than the US. Figure P.4 shows the employment status of SD and US civilian workers for 2002-2008.
- Approximately 11.8% of civilian workers in SD were self-employed during 2002-2008, higher than the US (Figure P.4).
- On average between 2002-2008, fewer than 20% of civilian workers in SD and the US were employed part-time.

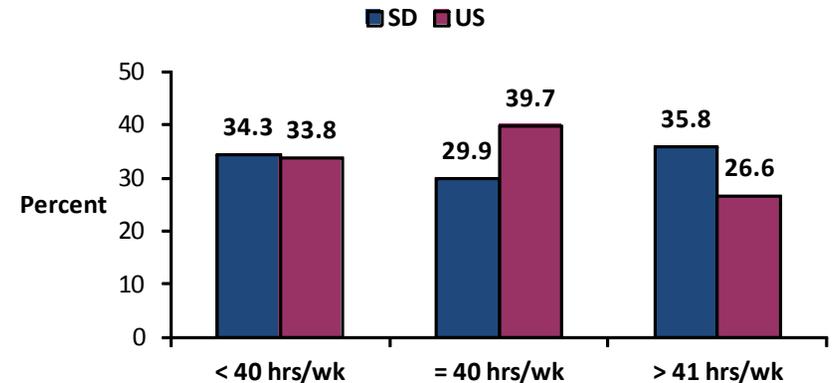
Figure P.4 Employed SD and US Civilian Workers by Employment Status, 2002-2008



Employment by Hours

- The majority of civilian workers employed in SD and the US from 2002 to 2008 were employed full time and worked at least a standard work week of 40 hours or greater (Figure P.5).

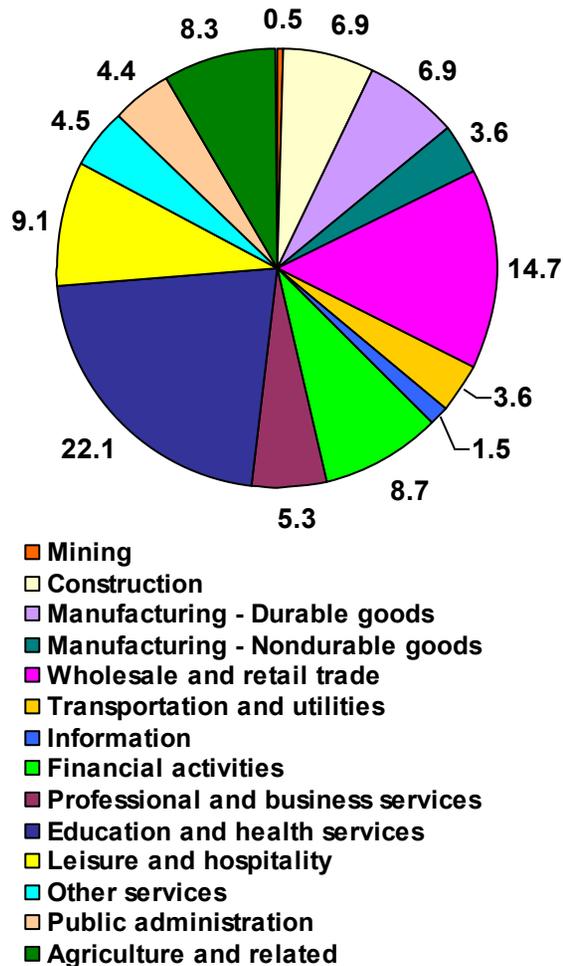
Figure P.5 Employed SD and US Civilian Workers by Hours Worked, 2002-2008



Industries and Occupations

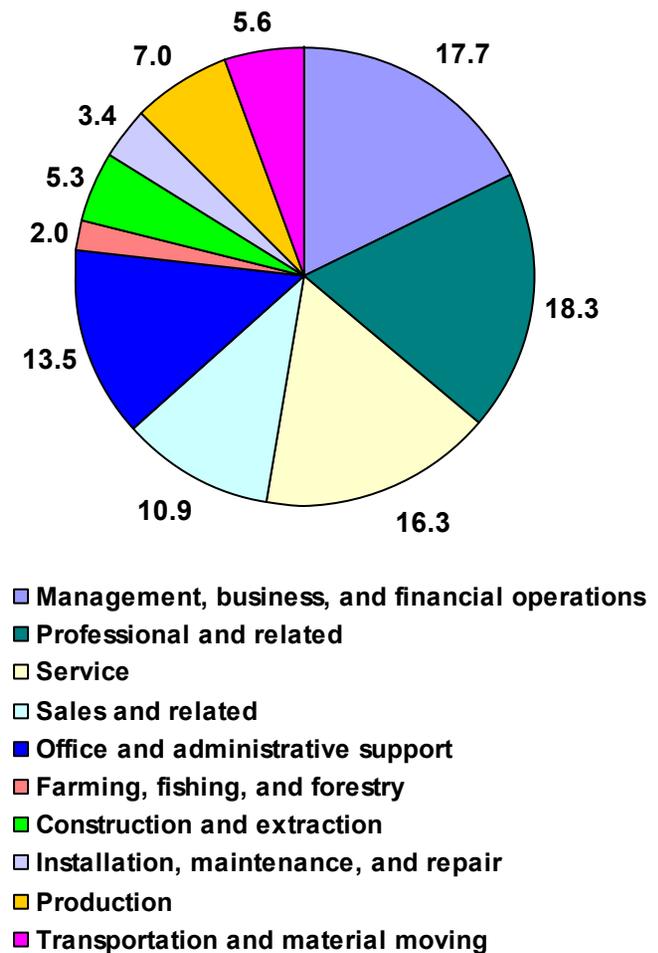
- Industries that employed the most civilian workers in SD and the US from 2003 to 2008 were Education and Health Services and Wholesale and Retail Trade. Figure P.6 represents the distribution of SD workers in each industry.

Figure P.6 Employed SD civilian workers by industry, 2003-2008 (%)



- Occupational groups that employed the most civilian workers in SD and the US from 2003 to 2008 were Professional and Related Occupations, Management, Business and Financial Operations and Service. Figure P.7 represents the percentage of SD workers in each occupational group.

Figure P.7 Employed SD civilian workers by occupation, 2003-2008 (%)



Limitations

- Demographic and workforce characteristics are helpful to describe the workforce, but do not directly measure occupational risks or hazards.
- Data from the Current Population Survey, a monthly probability sample of households in the United States, provide only an estimate.
- Workers under the age of 16, active-duty military and inmates are not included in the estimates.
- The percentage of racial or ethnic workers may be underestimated if they do not have permanent residences or are migratory. Thus, in states that experience high rates of seasonal employment, the demographic data are likely to underestimate the size of the population at risk for work-related injuries and illnesses.

Recommendations

- Determine how workforce demographics and characteristics impact work-related injuries and illnesses in SD.
- Develop methods for tracking migratory worker populations in order to assess the impact of work-related injuries and illnesses in SD.

This page was intentionally left blank

Indicator 1: Non-fatal Injuries and Illnesses

Significance

The identification of non-fatal work-related injuries and illnesses and associated factors, risks and exposures is useful for intervention, education, prevention and regulatory efforts. Work-related **injuries** are typically one-time events and include burns, falls, strains, sprains or fractures, electric shocks, being struck by a falling object or getting caught in machinery and associated amputation. Work-related **illnesses** are usually a result of cumulative exposure to hazardous materials or repetitive motions. Examples include occupational asthma, asbestosis, pneumoconiosis (dust-induced lung disease), mesothelioma, and carpal tunnel syndrome, among others.

Methods

The CSTE guidance to calculate *Occupational Health Indicator #1: Non-Fatal Injuries and Illnesses Reported by Employers* is based on data from the Bureau of Labor Statistics (BLS) Survey of Occupational Injuries and Illnesses (SOII). The SOII is a survey of sampled establishments throughout the United States that is designed to provide an estimate of the number and rate of work related injury and illnesses reported by employers. The SOII data comes from employer injury logs maintained as part of the Occupational Safety and Health Administration's record-keeping requirements.

South Dakota is one of eight states that does not participate in administration of the BLS SOII; thus, state-level SOII data are not available to calculate indicator #1 based on the CSTE methodology. As an alternative method, data were collected from the SD State Department of Labor, Division of Workers' Compensation on the number of non-fatal work-related injury and illness cases reported by

employers. Rates are based on Full-time Equivalents (FTEs) (i.e., hours worked), as opposed to employment numbers. Utilizing FTE's rather than employment numbers is considered to be more accurate in measuring the risk of work-related fatality occurring.

Results

- On average, 4.8% of workers over the age of 16 in SD filed a non-fatal work-related injury and illness case estimates for the years 2002 to 2006. (Table 1.1)

Year	SD Employed , Age 16 and Older	Non-fatal Work- related Injury and Illness Esti- mates, # (%)	Estimated Annual Total Number of Injuries and Illnesses per 100,000 FTEs
2002	408,000	20,950 (5.1)	5,135
2003	410,000	19,197 (4.7)	4,682
2004	416,000	19,622 (4.7)	4,717
2005	414,000	19,785 (4.8)	4,779
2006	421,000	19,937 (4.7)	4,736

Limitations

- The number of case estimates reported by employers may underestimate the number of non-fatal injuries and illnesses; not all individuals with work-related injuries and illnesses report such cases to their employers.
- Differences in eligibility criteria and availability of data of workers' compensation programs limit these data from being compared with other states or overall US data.
- Work-related illness with longer latency periods or work-related illness difficult to associate with the workplace may not be included.
- These data should not be compared to other states' numbers and rates of non-fatal injuries and illnesses. South Dakota's non-fatal work-related injury and illness data are based on workers' compensation claims filed in the workers' compensation system and most other states' data are based on SOII data reported by employers. Both systems capture a unique set of non-fatal worker injury and illness data that are difficult to compare due to a variety of reasons and limitations of each dataset.
- Federal employees are covered under federal workers' compensation regulations. Therefore they are not included in these estimates.
- Self-employed workers are generally not included in SD workers' compensation data, unless they claim workers' compensation benefits.

Recommendations

- SD should participate in the Survey of Occupational Injuries and Illnesses (SOII). The SOII collects data on work-related injuries and illnesses reported by employers. Data for work-related injuries and illnesses are very limited in SD, and SOII participation would provide data that are helpful in describing the burden of injuries and illnesses that occur in the workplace.
- Describe non-fatal work-related injuries and illnesses in SD by industry, occupation, type of injury/illness, and claims resulting in days away from work for a more comprehensive surveillance data set.
- Determine risk factors that contribute to work-related illness and injuries to guide intervention, education, prevention and regulatory efforts.

This page was intentionally left blank

Indicator 2: Work-related Hospitalizations

Significance

Describing and tracking work-related hospitalizations is useful for identifying high-risk occupations and targeting prevention.

Methods

Hospital records and data are collected and distributed by the South Dakota Association of Health Care Organizations (SDAHO). Because SDAHO charges a fee to obtain hospital records and no work-related hospitalizations data are publicly available for SD, we were not able to obtain data on work-related hospitalizations.

Recommendations

- Obtain hospital records, to describe injuries and illnesses in SD by industry, occupation, age, gender, race/ethnicity and type of injury/illness in hospital and Emergency Room discharge summaries and reports to SD surveillance programs.
- Determine the factors that contribute to work-related injury/illnesses to guide intervention, education, prevention and regulatory efforts.

Indicator 3: Fatal Work-related Injuries

Significance

Fatal work-related injuries are defined as injuries that occur at work and result in death. **Unintentional** injuries include falls, electrocutions, acute poisonings and motor vehicle crashes occurring during work-related travel. **Intentional** injuries include homicides and suicides that occur at work. Workplace fatalities involve many risk factors, including workplace design and procedures, and social interactions. The identification of these risk factors and exposures through surveillance of work-related fatalities is useful for intervention, education, prevention and regulatory efforts.

Methods

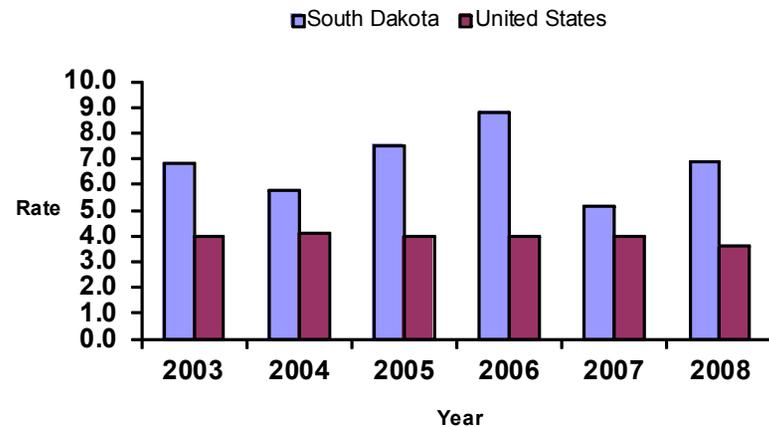
The rates of fatal work-related injuries are reported for the years 2003 to 2008 for both SD and the US. Numerator data were obtained from the Census of Fatal Occupational Injuries (CFOI) and rates were calculated using the BLS Current Population Survey as the denominator.

Results

- The average annual rate of fatal work-related injuries in SD was 6.8 per 100,000 workers. (Table 3.1 and Figure 3.1)
- Work-related fatality rates in SD averaged 6.8 per 100,000 workers. This is higher than the average US rate of 4.0 per 100,000 workers for the time period 2003 to 2008.(Table 3.1 and Figure 3.1)

Number and fatality rate of work-related injuries per 100,000 employed persons age 16 years and older		
Year	South Dakota #(%)	United States #(%)
2003	28 (6.8)	5575 (4.0)
2004	24 (5.8)	5764 (4.1)
2005	31 (7.5)	5734 (4.0)
2006	37 (8.8)	5840 (4.0)
2007	22 (5.1)	5657 (4.0)
2008	30 (6.9)	5214 (3.6)

Figure 3.1 Rate of Fatal Work-related Injuries per 100,000 Workers, SD and US, 2003-2008



Limitations

- Since work-related fatalities are reported by the state in which the fatality occurred and not the state of the worker's residence, rates may overestimate risk if the work-related fatalities involved workers who were out-of-state residents. Likewise, rates may be underestimated if fatalities occurred in other states.
- The SD numerator data may include the fatalities of people younger than 16 and military personnel.

Recommendations

- Review fatal work-related injury and illness data in SD by industry, cause, occupation, age, gender, race/ethnicity and injury/illness characteristics.
- Identify the primary risk factors which contribute to work-related fatalities to guide intervention, education, prevention and regulatory efforts.

This page was intentionally left blank

Indicator 4: Work-related Amputations with Days Away from Work Reported by Employers

Significance

Most work-related amputations involve full or partial loss of fingers. Less common amputations involve the arm, leg, foot, toe, nose or ear. Work-related amputations can be prevented through the identification and control of occupational hazards and the implementation of safety procedures and regulations.

Methods

In SD, data on amputations reported by employers are not available because SD is 1 of 7 states that does not participate in the Survey of Occupational Injuries and Illnesses (SOII).

Recommendations

- SD should participate in the Survey of Occupational Injuries and Illnesses (SOII).

This page was intentionally left blank

Indicator 5: Amputations Identified in Workers' Compensation System

Significance

Most work-related amputations involve full or partial loss of fingers. Less common amputations involve the arm, leg, foot, toe, nose or ear. Work-related amputations can be prevented through the identification and control of occupational hazards and the implementation of safety procedures and regulations.

Methods

The SD Department of Labor, Division of Workers' Compensation does not track the number of compensation claims filed for amputations, nor the claims filed for amputations resulting in "work time loss." Results of this indicator could not be assessed because of lack of amputation claim data.

Recommendations

- Track Workers' Compensation claims for amputations by industry, occupation, type of amputation, and "work time loss" to identify and control occupational risk factors and patterns for the prevention of work-related amputations and to help guide intervention, education, prevention and regulatory efforts.

This page was intentionally left blank

Indicator 6: Hospitalizations From Work-related Burns

Significance

Hospitalizations from work-related burns include injuries to tissues caused by contact with dry heat (fire), moist heat (steam), chemicals, electricity, friction, or radiation. Describing and tracking hospitalizations from work-related burns are useful for identifying high risk occupations or work processes and targeting prevention.

Methods

Hospital records and data are collected and distributed by the South Dakota Association of Health Care Organizations (SDAHO). Because SDAHO charges a fee to obtain hospital records and no work-related burn data are publicly available for SD, we were not able to obtain data on hospitalizations from work-related burns.

Recommendations

- Obtain hospital records, to review work-related burn hospitalizations by industries/occupations. Target those industries/occupations with the most hospitalizations for work-related burns to guide education, prevention and intervention efforts.

This page was intentionally left blank

Indicator 7: Musculoskeletal Disorders Reported by Employers

Significance

Work-related musculoskeletal disorders and injuries affect the muscles, tendons, nerves, ligaments, joints and spinal discs and significantly impact the ability of workers to perform their jobs effectively. Contributing work activities include repetitive motion, placing hands or limbs in awkward positions, using equipment that vibrates and handling heavy objects. Work-related musculoskeletal disorders can be prevented through the identification and control of occupational hazards and the implementation of safety procedures and regulations.

Methods

In SD, data on musculoskeletal disorders reported by employers are not available because SD is 1 of 7 states that does not participate in the Survey of Occupational Injuries and Illnesses (SOII).

Recommendations

- SD should participate in the Survey of Occupational Injuries and Illnesses (SOII). The SOII collects data on work-related injuries and illnesses reported by employers.
- Examine work-related MSDs by industry, age, gender, race/ethnicity, occupation and source of injury/illness to help guide intervention and prevention efforts.

Indicator 8: Carpal Tunnel Syndrome Cases Identified in Workers' Compensation Systems

Significance

Work-related carpal tunnel syndrome (CTS) may be caused by trauma or fractures of the hand or wrist or physical hazards, such as high exertional force and high repetition, placing hands or limbs in awkward positions or using equipment that vibrates. Symptoms include burning, tingling and numbness of fingers which can lead to difficulty in gripping and holding objects. Work-related CTS can be prevented through the identification and control of occupational hazards and the implementation of safety procedures and regulations.

Methods

The SD Department of Labor, Division of Workers' Compensation, tracks the number of cases reported for CTS. Data were available from 2002 to 2006. Annual incidence rates were calculated using the number of workers covered by workers' compensation provided by the National Academy of Social Insurance (NASI).

Results

- Annually, an estimated 284 per 100,000 SD workers reported work-related CTS for the years 2002 to 2006. (Table 8.1)
- The annual incidence rate of CTS reported to the SD Division of Workers' Compensation per 100,000 workers covered ranged from 235 to 359, with a downward trend for the years 2002 to 2006. (Table 8.1)

Table 8.1 Estimated Total Carpal Tunnel Syndrome Cases Report By Employers, SD, 2002-2006

Year	Employed, Age 16 and Older	Number of CTS Cases Reported by Employers	Estimated Annual Total CTS Cases per 100,000 SD Employees
2002	408,000	1,465	359
2003	410,000	1,261	308
2004	416,000	1,153	277
2005	414,000	992	240
2006	421,000	990	235

Limitations

- The number of CTS cases reported by employers may be underestimated because not all individuals with work-related injuries and illnesses report their case to their employer.
- The number of CTS cases may be underestimated because the employer may or may not report the case to the division of workers' compensation.
- Differences in eligibility criteria and availability of data of workers' compensation programs limit these data from being compared with other states or overall US data.

Recommendations

- Review the incidence of CTS by industry, occupation, age, gender, race/ethnicity, and other characteristics.
- Identify primary risk factors that contribute to CTS to target prevention efforts.
- Identify and track other forms of repetitive motion injury.
- Educate primary care physicians and workers on the relationship between work-place exposure and risks and the development of CTS.

This page was intentionally left blank

Indicator 9: Pneumoconiosis Hospitalizations

Significance

Pneumoconioses are lung diseases caused by dust exposure in the workplace. Pneumoconioses include silicosis, asbestosis, coal workers' pneumoconiosis and pneumoconiosis due to a variety of other mineral dusts including talc, aluminum, bauxite, and graphite. Complications of pneumoconiosis that may cause hospitalizations include respiratory infections, tuberculosis, chronic bronchitis, emphysema, lung cancer, pleuritis, progressive systemic sclerosis, renal disease and respiratory failure. Controlling and monitoring exposure to dust and ongoing medical surveillance are important in preventing pneumoconioses.

Methods

Hospital records and data are collected and distributed by the South Dakota Association of Health Care Organizations (SDAHO).

Because SDAHO charges a fee to obtain hospital records and no pneumoconiosis data for SD are publicly available, we were not able to obtain data on hospitalizations from pneumoconiosis.

Recommendations

- Identify data sources that estimate the rate of outpatient (non-hospitalized) cases of pneumoconiosis.
- Obtain pneumoconiosis hospitalization data from a source which is not voluntary.

This page was intentionally left blank

Indicator 10: Pneumoconiosis Mortality

Significance

Pneumoconioses are lung diseases caused by dust exposure in the workplace. Pneumoconioses include silicosis, asbestosis, coal workers' pneumoconiosis and pneumoconiosis due to exposures to a variety of other mineral dusts, including talc, aluminum, bauxite, and graphite. Controlling occupational exposure through monitoring, surveillance and prevention programs can prevent pneumoconioses.

Methods

Pneumoconiosis hospitalization data have been obtained from the South Dakota Association of Health Care Organizations. However, the number of annual events is too small to produce reliable estimates. Pneumoconiosis mortality rates could not be calculated.

Results

- Less than 5 pneumoconiosis deaths occurred per year in North Dakota from 2004 to 2008.

Limitations

- The estimated incidence of mortality from pneumoconiosis does not necessarily represent current exposures, primarily because of the long latency between a person's first dust exposure and development of disease.

Recommendations

- Review mortality by type of pneumoconiosis, age, gender and race/ethnicity.

Indicator 11: Acute Work-related Pesticide Poisonings Reported to Poison Control Centers

Significance

An estimated 1 billion pounds of pesticides are used each year in the United States to protect food and control disease. Agricultural workers and those applying pesticides have the highest risk of over-exposure to potentially harmful pesticides. The Environmental Protection Agency estimates that 20,000 to 40,000 work-related pesticide poisonings occur each year.

Methods

The American Association of Poison Control Centers collects information on reported cases of work-related pesticide poisoning resulting in acute illness and has published results up to the year 2005. Pesticide poisonings include exposures to disinfectants, fungicides, fumigants, herbicides, insecticides, repellents and rodenticides. The incidence of reported work-related pesticide poisonings per 100,000 employed persons age 16 years and older is calculated for SD and the US for the years 2002 to 2008 using the BLS Current Population Survey data for the denominator.

Results

- An estimated 5 per 100,000 SD workers per year reported work-related pesticide poisoning from 2002 to 2008. (Table 11.1 and Figure 11.1)
- The rate of work-related pesticide poisonings in SD ranged from 2.9 to 8.2 per 100,000 workers per year for the years 2002 to 2008. (Table 11.1 and Figure 11.1)

- Rates in SD were higher compared to overall US rates which have remained between 1.5 and 1.9 from 2002 to 2008. (Table 11.1 and Figure 11.1)

Table 11.1 Work-related Pesticide Poisonings Reported to Poison Control Centers, SD and US, 2002-2008

	Number and rate per 100,000 employed, Age 16 and Older	
Year	South Dakota # (%)	United States # (%)
2002	19 (4.7)	2,528 (1.9)
2003	12 (2.9)	2,503 (1.8)
2004	21 (5.0)	2,476 (1.8)
2005	16 (3.9)	2,593 (1.8)
2006	17 (4.0)	2,560 (1.8)
2007	20 (4.7)	2,458 (1.7)
2008	19 (4.4)	2,171 (1.5)

Limitations

- Not all work-related pesticide exposures resulting in illness are reported to Poison Control Centers.
- Most reported work-related pesticide poisonings are acute exposures to pesticides; chronic long-term exposures are usually not reported to Poison Control Centers.
- Poison control centers capture the types and active ingredients of a pesticide; however, the circumstance, occupation and business and industrial identification associated with a call are generally unknown.

Recommendations

- Review reported work-related pesticide poisonings by age, gender, race/ethnicity, severity and illness in order to better target prevention efforts.

This page was intentionally left blank

Indicator 12: Incidence of Malignant Mesothelioma

Significance

Mesothelioma is a rare, fatal cancer of the lining that surrounds the chest and abdominal cavities. Primarily attributable to asbestos exposure, onset of the disease may not occur for 20 to 40 years after exposure. Despite regulatory actions and the decline in the use of asbestos, the number of deaths from malignant mesothelioma, are still increasing in the United States. This could be due to exposures that occurred decades ago. However, there is a continued need to monitor and prevent work related exposure to asbestos. New cases might result from occupational and environmental exposure during remediation and demolition of older buildings that contain asbestos materials. Mesothelioma can be prevented by controlling occupational exposure through monitoring, surveillance and prevention programs.

Methods

Mesothelioma data by year and age group were provided by the South Dakota Department of Health Cancer Registry. Age-standardized rates were not calculated due to the small number of cases for multiple age groups. State population estimates were obtained from the US Census Bureau for the denominator. Nationwide estimates are not available because not all states meet current reporting standards.

Results

- Annually, an estimated 9 per one million SD workers were diagnosed with mesothelioma from 2002 to 2008. (Table 12.1)

- Mesothelioma is primarily attributable to asbestos exposure. Rates have ranged from as low as 4.8 to as high as 14.7 per one million SD workers from 2002 to 2008. (Table 12.1)

Year	Crude annual incidence rate per 1 million residents
2002	9.9
2003	11.5
2004	14.7
2005	11.3
2006	4.8
2007	6.3
2008	7.8

Limitations

- The estimated incidence does not necessarily represent current exposures, primarily because of the long latency associated with the disease.

Recommendations

- Review the incidence of mesothelioma by age, gender, race/ethnicity, occupation, industry and exposure history for prevention efforts.

Indicator 13: Elevated Blood Lead Levels Among Adults

Significance

Exposure to elevated levels of lead in the workplace can cause anemia, hypertension, nerve and kidney damage and lead to fertility and pregnancy problems. Lead remains a substantial health problem in the United States due to occupational and environmental exposures. Occupational exposure may occur in workers engaged in the manufacture of storage batteries, mining of lead and zinc ores, working in firing ranges and painting and paper hanging. The average Blood Lead Level (BLL) of the general population is less than 2 micrograms per deciliter ($\mu\text{g}/\text{dL}$).

Methods

SD is 1 of 10 states that does not participate in the national Adult Blood Lead Epidemiology and Surveillance (ABLES) program. The SD Department of Health does not collect data on elevated blood lead levels.

Recommendations

- Encourage the SD DOH to include adult elevated blood levels as a reportable occupational health condition in SD.

Indicator 14: Workers Employed in Industries with High Risk for Occupational Morbidity

Significance

In 2008, the U.S. Bureau of Labor Statistics (BLS) reported an estimated total of 3.7 million injury and illness cases within the private sector workforce. This equates to an estimated incidence rate of 3.9 cases per 100 full-time-equivalent workers. Workers in certain industries sustain a higher percentage of injuries and illnesses resulting in days away from work. Industry categories that are at highest risk for occupational morbidity are determined every five years based on those industries with injury and illness rates more than double the national injury and illness rate average. The last five year period for this calculation was 2003 to 2007 and the most recent period is 2008 to 2012. Work-related injuries and illnesses are preventable and control of occupational hazards is the most effective means of prevention. Concentrating on specific industries that may be at high-risk for non-fatal injuries and illnesses will help prioritize limited resources.

Methods

The US Census Bureau County Business Patterns reports the percentage of workers employed in industries at high risk for occupational morbidity. High morbidity risk industries are identified based on annual injury and illness incidence rates for private sector workers. The percent of workers in SD and US employed in industries with high risk for occupational morbidity is described for the years 2003 to 2008.

Results

- Between 2003 to 2008, approximately 8.9% of the workforce in SD and 6.6% of the workforce in the US were employed in industries with a **disproportionately high** risk for non-fatal injuries and illnesses. (Table 14.1)
- For the years 2003-2007, the highest morbidity industries in SD included:
 - Nursing and Residential Care Facilities
 - Animal Slaughtering and Processing
 - Wood Products Manufacturing
 - Couriers and Messengers
 - Motor Vehicle Body and Trailer Manufacturing
- During 2003-2007, the Plate Work and Fabricated Structural Product industry increased to one of the industries for highest risk of occupational morbidity in SD, as well.
- SD employment rates in industries with high risk for occupational morbidity were higher than overall US rates. (Table 14.1)

Table 14.1 Percentage of Workers Employed in Industries with High Risk for Occupational Morbidity, SD and US, 2003-2008		
Year	South Dakota	United States
2003	9.0	6.7
2004	8.5	6.6
2005	8.7	6.6
2006	9.0	6.5
2007	8.5	6.4
2008	9.8	6.6

* 2008 data collected according to an updated list of high-risk industries and are not comparable to prior years.

Recommendations

- Identify high-risk industries in SD for prevention efforts.
- Identify regionally important high risk industries in SD for prevention activities.

Limitations

- Since the County Business Patterns estimates are calculated in March of each year, new employees for that year may not be counted.
- The ranking of high-risk industries may differ by region.
- Estimates are based on a probability sample of private sector employers and does not include all employers.
- Estimates are based on injury and illness data maintained by employers and are subject to sampling error.
- Estimates do not include the military, small farms and federal agencies.

Indicator 15: Workers Employed in Occupations with High Risk for Occupational Morbidity

Significance

In 2008, the BLS reported an estimated 1.1 million injuries and illnesses that resulted in “days away from work” (DAFW). This equates to a rate of 113 DAFW cases per 100,000 FTEs. The risk of these injuries and illnesses is significantly higher in certain occupations. Occupational categories that are at highest risk for occupational morbidity are determined based on those occupations with injury and illness rates more than double the national DAFW injury and illness rate annual average. The last five-year period for this calculate was 2003 to 2007 and the most recent period is 2008 to 2012. Work-related injuries and illnesses are preventable and control of occupational hazards is the most effective means of prevention. Concentrating on occupations at high-risk for nonfatal injuries and illnesses will help prioritize limited resources.

Methods

The percent of workers employed in high-risk occupations are reported from 2003 to 2009 based on 2000 census codes for employed persons age 15 or older in SD and the United States. These data were collected from the BLS Current Population Survey.

Results

- Between 2003 and 2007, approximately 11.5% of the workforce in SD was employed in occupations with high risk for occupational morbidity. In 2008, approximately 22.4% of the SD workforce was employed in high risk occupations. (Table 15.1)

For the years 2003 and 2007, the highest morbidity occupations in SD included:

- Driver/Sales Workers and Truck Drivers
- Laborers and Freight, Stock, and Material Movers
- Construction laborers
- Carpenters
- Nursing/Psychiatric, and Home Health Aides

Table 15.1 Percentage of Workers Employed in Occupations with High Risk for Occupational Morbidity, SD and US, 2003-2008

Year	South Dakota	United States
2003	11.5	14.1
2004	11.3	13.0
2005	11.1	13.2
2006	11.5	14.5
2007	12.1	14.1
2008	17.2	16.1

* 2008 data collected according to an updated list of high-risk occupations and are not comparable to prior years.

Limitations

- The ranking of high-risk occupations may differ by state and/or industry.
- Estimates do not include the military, small farms and federal agencies.

Recommendations

- Identify high-risk occupations in SD to help guide prevention efforts.

Indicator 16: Workers Employed in Occupations and Industries with High Risk for Occupational Mortality

Significance

Each year, over 4,600 cases of work-related fatalities are reported to the Census of Fatal Occupational Injuries (CFOI) Program administered by the Bureau of Labor Statistics (BLS). On an average day, 13 workers die in the US as a result of injuries sustained at work. The risks for these occupational fatalities are significantly higher in certain industries and occupations. Occupation and industry categories that are at highest risk for occupational mortality are determined every five years based on those occupations and industries with fatality rates more than double the national annual average. The last five-year period for this calculation was 2003 to 2007 and the most recent period is 2008 to 2012. Prevention efforts should target these highest risk occupations and industries.

Methods

The BLS collects information on the percentage of workers employed in industries and occupations at high risk for occupational mortality. The percent of workers in SD and US employed in industries and occupations with high risk for occupational mortality is reported for the years 2004 to 2008.

Results

- Approximately 19% of workers in SD and 14% in the US were employed in industries at high risk for mortality from 2003 to 2008. (Table 16.1)

For the years 2003-2007, the highest mortality industries in SD included:

- Construction
- Animal Production
- Crop Production
- Truck Transportation
- Farm product raw materials, merchant wholesalers
- Drinking places, alcoholic beverages

- Approximately 16% of workers in SD and 10% in the US were employed in occupations at high risk for mortality from 2003 to 2008. (Table 16.1)
- For the years 2003-2007, the highest mortality occupations in SD included:

- Farmers and Ranchers
- Drivers/Sales Workers and Truck Drivers
- Miscellaneous Agricultural Workers
- Construction Laborers
- First-line Supervisors/Managers of Construction Trades and Extraction Workers
- Electricians
- Grounds Maintenance Workers

Table 16.1 Workers Employed in Industries and Occupations at High Risk for Occupational Mortality, SD and US, 2003-2008				
	% of workers employed in high risk <u>industries</u>		% of workers employed in high risk <u>occupations</u>	
Year	SD	US	SD	US
2003	21.4	15.1	16.9	10.7
2004	20.9	15.6	15.3	10.8
2005	21.7	16.0	17.1	11.2
2006	24.3	16.3	19.1	11.4
2007	23.1	16.3	18.0	11.4
2008	22.2	16.6	18.5	13.0

**2008 data collected according to an updated list of high-risk occupations and industries and are not comparable to prior years.*

Limitations

- The ranking of high-risk occupations and industries may differ by state and/or industry.
- Determination of high risk industries and occupations based on Current Population Survey estimates may be unstable from year-to-year.
- Suicides that take place at the workplace are considered work-related fatalities even though these deaths may not be necessarily caused by work-related factors.

- Deaths reported are for the private sector only and exclude military deaths.

Recommendations

- Identify the primary risk factors that contribute to fatalities in high risk industries and occupations to develop prevention intervention strategies.

Indicator 17: Occupational Health and Safety Professionals

Significance

The goals of occupational safety and health professionals are to identify hazardous conditions, materials and practices in the workplace and assist employers and workers in eliminating or reducing the attendant risks. An adequate number of these professionals in the fields of occupational medicine, occupational health nursing, industrial hygiene and safety are needed to ensure safe and healthy workplaces.

Methods

The number of professionals and rate per 100,000 employees in SD for 2003 to 2008 are reported using data from the American College of Occupational and Environmental Medicine (ACOEM), American Association of Occupational Health Nurses (AAOHN), American Industrial Hygiene Association (AIHA), American Society of Safety Engineers (ASSE) and the BLS Current Population Survey.

Results

- For every 100,000 employees in SD for the years 2003 to 2008, on average, there was one occupational medicine physician, three occupational health nurses, one industrial hygienist, and two safety professionals. (Table 17.1)

Limitations

- Other occupational safety and health fields are not included, such as health physics, ergonomics, or occupational health psychology.
- Member lists include retired and part-time professionals and therefore may overestimate the number of active occupational and safety professionals.

Recommendations

- Recruit and retain critical occupational health and safety professionals to work in SD.
- Increase the number of students in the occupational safety health professional curricula and training programs.

Table 17.1 Number of Occupational Safety and Health Professionals and Rate per 100,000 Employees, SD, 2003-2007					
	2003	2004	2005	2006	2007
Occupational medicine physicians, # (rate)	2 (0.5)	3 (0.7)	4 (1.0)	3 (0.7)	3 (0.7)
ACOEM members, # (rate)	11 (2.7)	14 (3.4)	12 (2.9)	12 (2.9)	11 (2.6)
Occupational health nurses, # (rate)	13 (3.2)	14 (3.4)	17 (4.1)	14 (3.3)	14 (3.3)
AAOHN members, # (rate)	17 (4.1)	22 (5.3)	22 (5.3)	18 (4.3)	16 (3.7)
Industrial hygienists, # (rate)	3 (0.7)	3 (0.7)	5 (1.2)	4 (1.0)	5 (1.2)
AIHA members, # (rate)	7 (1.7)	6 (1.4)	7 (1.7)	7 (1.7)	6 (1.4)
Safety professionals, # (rate)	8 (2.0)	9 (2.2)	8 (1.9)	9 (2.1)	10 (2.3)
ASSE members, # (rate)	17 (4.1)	18 (4.3)	19 (4.6)	14 (3.3)	15 (3.5)

Indicator 18: OSHA Enforcement Activities

Significance

The US Department of Labor Occupational Safety and Health Administration (OSHA) conducts investigations and inspections at worksites to ensure compliance with employee safety and health standards and regulations. Investigations and inspections typically occur at worksites in the event of work-related fatal and non-fatal injuries, hospitalizations, employee complaints and outside referrals. Random inspections are also conducted at high-risk worksites. OSHA jurisdiction in SD includes private and federal employers and employees.

Methods

Enforcement activities within establishments under OSHA jurisdiction in SD (excluding mines and farms) for the years 2001 through 2008 are reported. Data sources were OSHA annual reports on inspections covered and the number of workers covered by these inspections and the BLS Quarterly Census of Employment and Wages (ES-202/QCEW).

Results

- Approximately 1% of worksites in SD were inspected by OSHA each year between 2001 and 2008. (Table 18.1)
- The percent of OSHA-covered employees whose work areas were inspected ranged from 1.2 to 4.1. (Table 18.1)

Year	Establishments under jurisdiction	Establishments inspected, # (%)	Covered employees	Covered employees inspected # (%)
2002	25,716	209 (0.8)	303,102	9,010 (3.0)
2003	25,958	150 (0.6)	303,861	5,661 (1.9)
2004	26,547	232 (0.9)	308,555	12,802 (4.1)
2005	27,146	174 (0.6)	314,459	4,152 (1.3)
2006	27,650	250 (0.9)	322,390	3,836 (1.2)
2007	28,136	227 (0.8)	330,003	6,978 (2.1)
2008	28,460	274 (1.0)	334,248	6,346 (1.9)

Limitations

- The percent of worksites inspected may be overestimated since multiple inspections may occur at the same worksite in the same year.
- Only enforcement activities are measured.

Recommendations

- Obtain details of enforcement activities.
- Increase the number of inspections for better enforcement to help prevent future work-related injuries and illnesses.

Indicator 19: Workers' Compensation Benefits

Significance

Workers' compensation is a state-based social insurance program that covers work-related injuries and illnesses. Benefits include lost wages, related medical expenses, disability payments, and survivor benefits. Amounts of paid benefits represent the direct financial burden of work-related injuries and illnesses. A 'covered worker' is defined as a worker who is eligible for workers' compensation benefits in the event of a work-related injury or illness. Workers who may not be covered by state workers' compensation include those who are self-employed, corporate executives, federal employees, small business owners, farmers and agricultural workers.

Methods

The National Academy of Social Insurance (NASI) collects and reports estimated annual benefits, coverage and costs associated with workers' compensation programs. The average benefit paid per covered worker in SD and the US is reported for 2002 to 2007.

Results

- The average benefit paid to SD workers per year from 2002 to 2007 ranged from \$209 to \$313 and, nationwide, from \$402 to \$446. (Table 19.1 and Figure 19.1)
- The estimated total amount of benefits paid in SD from 2002 through 2007 ranged from \$73.4 million to \$119.4 million. (Table 19.1 and Figure 19.1)

- Nationwide, the estimated total amount of benefits paid ranged from \$49.2 billion to \$52.6 billion. (Table 19.1 and Figure 19.1)

Table 19.1 Average Workers' Compensation Benefit Paid per Covered Worker, SD and US, 2002-2007				
Year	Total benefits paid in thousands, \$		Benefit paid per covered worker, \$	
	SD	US	SD	US
2002	73,478	49,262,314	209	402.81
2003	74,241	51,554,290	210	423.85
2004	77,409	52,648,566	216	446.06
2005	85,889	51,949,416	235	434.07
2006	108,550	51,059,066	291	416.41
2007	119,351	52,087,023	313	419.15

Limitations

- Not all individuals with work-related injuries and illnesses file a workers' compensation claim.
- Since payments are made over time, annual awards may not reflect the full cost of injuries and illnesses for that year.
- Data do not describe the indirect burden of work-related injuries or illnesses (retraining and replacement worker costs, lost wages, administrative costs).

Recommendations

- Ascertain details of awards including industry, occupation, and cost to employer to target prevention efforts and further describe the economic costs of occupational injuries.

This page was intentionally left blank

Indicator 20: Hospitalizations for Work-related Low Back Disorders

Significance

Hospitalizations from work-related low back disorders include surgical low back disorder hospitalizations and all low back disorder hospitalizations. Certain hospitalizations – including Intraspinal abscess and osteomyelitis, vertebral and pathological fractures, cervical and thoracic disorders, cervical spinal fusions, and chordotomies – are excluded because the conditions are likely related to trauma or a non-occupational disease. Describing and tracking hospitalizations from work-related low back disorders are useful for identifying high risk occupations or work processes and targeting prevention.

Methods

Hospital records and data are collected and distributed by the South Dakota Association of Health Care Organizations (SDAHO). Because SDAHO charges a fee to obtain hospital records and no work-related burn data are publicly available for SD, we were not able to obtain data on hospitalizations from work-related burns.

Recommendations

- Obtain records to examine annual number of lower back-lumbar spine hospitalizations.

- Age, gender, race/ethnicity, zip code specific counts and rates can be used to better define the pattern of work-related hospitalizations. States that have access to statewide outpatient surgery data can compare trends of outpatient surgery for low back disorders to data from this indicator.

Conclusions

Occupational injuries and illness remain a significant problem in the US . The Bureau of Labor Statistics reported that 4,551 workers in private industry died as a result of work-related injuries in 2009, a rate of 3.5 per 100,000 full-time equivalent workers. In 2009, there were 1.2 million cases of on-the-job injuries and illnesses reported to the BLS that required days away from work. The National Safety Council estimated that on-the-job injuries (both fatal and non-fatal) cost society \$182.2 billion in lost wages, productivity, administrative expenses, health care and other costs in 2008.

Occupational health surveillance is the systematic monitoring of health events and exposures among working populations. The purpose of occupational health surveillance is to collect, analyze and disseminate data on work-related cases and exposures, and to partner and plan interventions, prevention programs and campaigns to reduce the burden of work related injuries and illnesses.

A significant gap in data and need for workplace health surveillance in SD is non-fatal work-related injuries and illnesses. SD is one of seven states that does not participate in the Survey of Occupational Injuries and Illnesses (SOII) and one of ten states that does not participate in the Adult Blood Lead Epidemiology and Surveillance (ABLES) program. Both of these programs help to characterize the burden of work-related injury and illness and guide intervention programs for the reduction of occupational exposures and are areas in which intervention and prevention programs have been successful in reducing the number of cases.

Of note, the rates of work-related fatalities in SD (2003-2008) were higher than overall US rates (SD 6.8 vs. US 4.0). The percent of workers employed in industries and occupations at high risk for occupational mortality was higher than the US, resulting in a significant burden on individual SD families and society as a whole and being able to accurately characterize the type of risks that are associated with these industries and occupations is a first step in planning intervention for prevention.

The rate of work-related pesticide poisonings in SD was higher compared to overall US rates. Agricultural workers are often a minority population or are members of a farm family with little resources for safety programs. Workers in rural areas often have limited access to healthcare and occupational health and safety professionals and need a better surveillance system to help characterize the problem accurately to guide intervention prevention measures. The current occupational health indicators do not specifically address disparity issues but other data sources may be able to be analyzed to characterize health disparity issues in SD.

Data Sources

American Association of Occupational Health Nurses (AAOHN) <http://www.aohn.org/>

American Association of Poison Control Centers <http://www.aapcc.org/DNN/>

American College of Occupational and Environmental Medicine (ACOEM) <http://www.acoem.org/>

American Industrial Hygiene Association (AIHA) <http://www.aiha.org/Content>

American Society of Safety Engineers (ASSE) <http://www.asse.org/>

Census Bureau County Business Patterns <http://www.census.gov/econ/cbp/index.html>

Census of Fatal Occupational Injuries (CFOI) <http://www.bls.gov/iif/oshcfoi1.htm>

Current Population Survey: <http://www.bls.gov/cps/>

Geographic Profiles of Employment and Unemployment <http://www.bls.gov/gps/>

National Academy of Social Insurance (NASI) <http://www.nasi.org/>

Occupational Safety and Health Administration <http://www.osha.gov/>

South Dakota Department of Labor <http://dol.sd.gov/>

South Dakota Department of Health <http://doh.sd.gov/>

References

Bureau of Labor Statistics. 2009. News: Workplace injuries and illnesses in 2009. Accessed 1 June 2011.

<http://www.bls.gov/news.release/osh.nr0.htm>

Bureau of Labor Statistics. 2009. News: Nonfatal occupational injuries and illnesses requiring days away from work. Accessed 1 June 2011.

<http://www.bls.gov/news.release/osh2.nr0.htm>

Bureau of Labor Statistics. 2009. News: National census of fatal occupational injuries in 2009. Accessed 1 June 2011.

<http://www.bls.gov/news.release/cfoi.nr0.htm>

Council of State and Territorial Epidemiologists (CSTE). 2001. The Role of the States in a Nationwide, Comprehensive Surveillance System for Work-Related Diseases, Injuries and Hazards. A Report from NIOSH-CSTE Surveillance Planning Group. P 1-123. <http://www.cste.org/OH/pdffiles/NIOSH.pdf>

Council of State and Territorial Epidemiologists (CSTE). 2004. Occupational Health Indicators: A guide for tracking occupational health conditions and their determinants. Updated April 2011. p 1-115. <http://www.cste.org/webpdfs/OHIdocumentrevised2008.pdf>

Council of State and Territorial Epidemiologists (CSTE). 2005. Putting Data to Work: Occupational Health Indicators from Thirteen Pilot States for 2000. September 2005: p. 1-76. http://www.cste.org/pdffiles/newpdffiles/CSTE_OHI.pdf

National Institute for Occupational Safety and Health (NIOSH). 2008. Guidelines for Minimum and Comprehensive State-Based Public Health Activities in Occupational Safety and Health, NIOSH Publication No. 2008-148.

Also available at <http://www.cdc.gov/niosh/2008-148/>.

U.S. Census Bureau 2001 Statistical Abstract. Costs of Unintentional Injuries: 2008. <http://www.census.gov/compendia/statab/2011/tables/11s0198.pdf>

Regional Education and Research Centers for Occupational Health and Safety



*A NIOSH Education and Research Center for
Occupational & Environmental Health & Safety*

Lee Newman, MD, MA, Director
Stephen Reynolds, PhD, CIH, Deputy Director
David Gilkey, DC, PhD, CPE, Director, Continuing Education (CE)

Colorado School of Public Health
13001 E. 17th Place, B119
Aurora, CO 80045
Telephone: 303-724-4607

Website: www.maperc.ucdenver.edu
Facebook: <http://www.facebook.com/MAPERC>
Twitter: twitter.com/map_erc



The Midwest Center for Occupational Health and Safety

Susan G. Gerberich, PhD, MS, Mayo Professor and Director
Pat McGovern, PhD, MPH, Bond Professor and Deputy Director
Ruth Rasmussen, MPH, MS, RN, Director, Continuing Education (CE)

1260 Mayo (MMC 807)
420 Delaware Street SE
Minneapolis, MN 55455
Telephone: 612-626-0900

Website: <http://www.mcohs.umn.edu>
Facebook: <http://www.facebook.com/MCOHS>